

Name: _____

Classifying Stars Lab

Use the Hertzsprung-Russell (HR) diagram to answer the questions that follow (see other side).

- 1 - What does the Y axis on the diagram represent? _____
- 2 - What does the X axis represent? _____
- 3 - What do the letters of the alphabet represent? _____
- 4 - What will the spectral class & temperature tell you about each star? _____
- 5 - Find the Sun on the diagram. What is its: Temperature? _____ Luminosity? _____ Color? _____
- 6 - Where on the diagram (top, bottom, left, right) would you find stars that are...?

hot & bright - _____

hot & dim - _____

cool & bright - _____

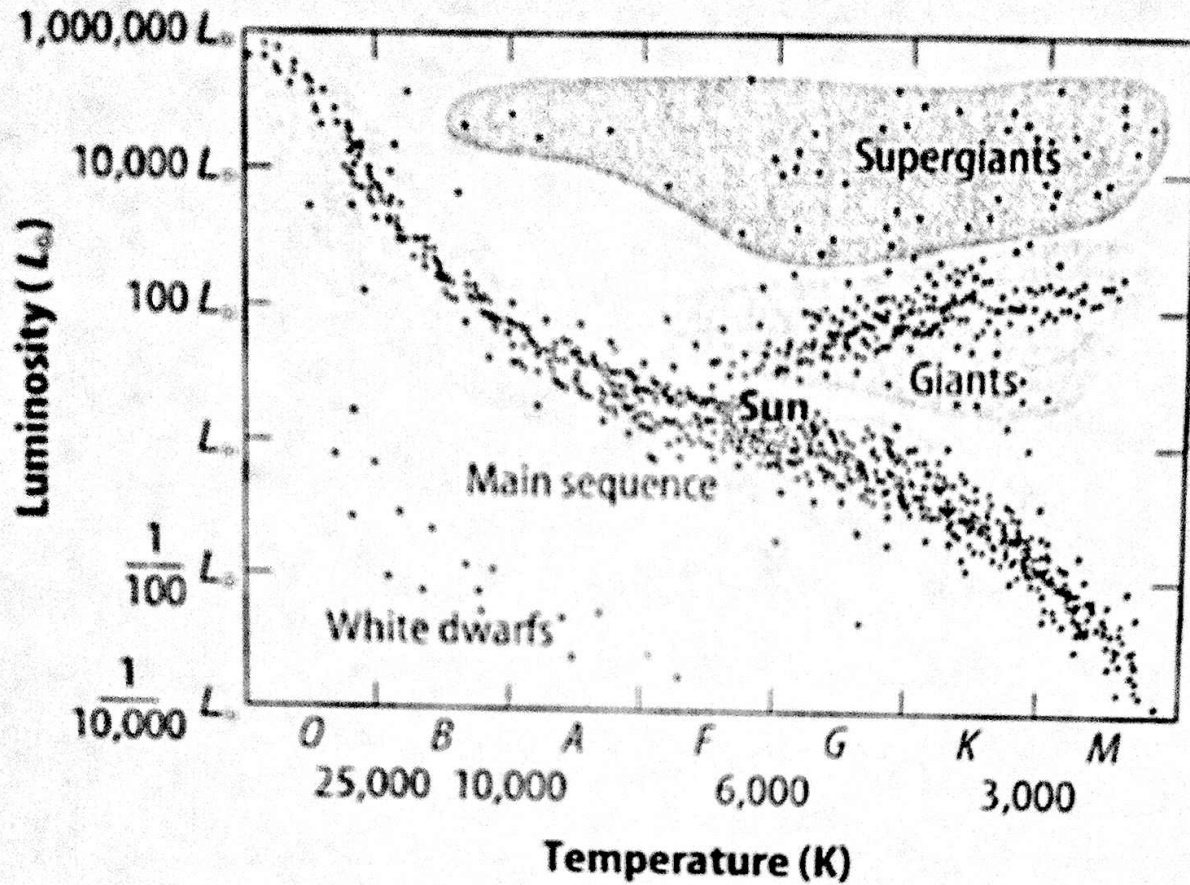
cool & dim - _____
- 7 - Using the luminosity of the stars & their surface temperatures, plot the location of each star on the HR diagram. Be sure to label with the correct NUMBER from the chart.
- 8 - Classify each star as a: main-sequence, giant, supergiant or white dwarf.
- 9 - Using both charts & the HR diagram, identify the color of each star.

Star	Surface Temperature (K)	Luminosity (relative to Sun)	Diameter (Solar diameters)	Type of Star	Color
1 - Sirius A	9100	22.6	2.03		
2 - Arcturus	4300	115	31.5		
3 - Vega	10300	50.8	3.1		
4 - Capella	5300	75.8	10.8		
5 - Rigel	11000	38,679	62		
6 - Procyon A	6500	7.5	1.4		
7 - Betelgeuse	2300	5520-14,968	662		
8 - Altair	7800	11.3	1.6		
9 - Aldebaran	4300	156-171	51.5		
10 - Spica	25300	2121	7.3		
11 - Pollux	4500	31	8		
12 - Deneb	10500	66,500	116		
13 - Procyon B	8700	0.0006	0.02		
14 - Sirius B	24000	0.00255	0.022		

- 10 - What *type* of star has the greatest luminosity? _____ The least? _____
- 11 - Look closely at the data in the chart. Is there a relationship between temperature & type of star? Explain.

Below is a copy of the Hertzsprung-Russell diagram. Cosmologists use this diagram to classify stars seen in the night sky.

Hertzsprung-Russell Diagram for Stars



Spectral Classes & Colors

Spectral Class	Temperature (K)	Color
O	25,000 & higher	Blue
B	11,000-25,000	Bluish-white
A	7,500-11,000	White
F	6,000-7,500	Yellowish-white
G	5,000-6,000	Yellow
K	3,500-5,000	Orange
M	Less than 3,500	Red